

FIG. 1

FIG. 2

(SEQ ID NO: 1)

Human Glycoprotein Hormones α -Subunit

1	APDVQDCPECTLQENPFFSQPGAPILQCMGCCFSRAYPTPLRSKKTMLVQ	8	30
51	KNVTSESTCCVAKSYNRTVMGGFKVENHTACHCSTCYYHKS	61	85
		L1 L3	

FIG. 3

(SEQ ID NO: 2)

Human Thyroid Stimulating Hormone (TSH)

1	FCIPTEYTMHIERRECAYCLTINTTICAGYCMTRDINGKLFLPKYALSQD	1	30
51	VCTYRDFIYRTVEIPGCPLHVAPYFSYPVALSCKCGKCNTDYSDCIHEAI	53	87
101	KTNYCTKPQKSYLVGFSV		
		L1 L3	

FIG. 4

(SEQ ID NO: 3)

Human Chorionic Gonadotropin (CG)

1	SKEPLRPRCRPINATLAVEKEGCPVCITVNNTTICAGYCPMTMTRVLQGVLP	8	33
51	ALPQVVCNYRDVRFESIRLPGCPRGVNPVVSYAVALSCQCALCRRSTTDC	58	87
101	GGPKDHPLTCDDPRFQDSSSKAPPPSLPSPSRLPGPSDT		
		L1 L3	

FIG. 5

(SEQ ID NO: 4)

Human Luteinizing Hormone (LH)

1	 SREPLRPWCHPINAILAVEKEGCPVCITVNNTTICAGYCPTMMRVLQAVLP
51	 PLPQVVCTYRDVRFESIRLPGCPRGVDPVVSFPVALSCRCPCCRSTSDC
101	GGPKDHPPLTCDHPOLSGLLFL

FIG. 6

(SEQ ID NO: 5)

Human Follicle Stimulating Hormone (FSH)

1	NSCELTNITIAIEKEECRFCISINTTWCAGCYTRDLVYKDPARPKitCT	4 L1 27
51	FKELVYETVRVPGCAHHADSLYTPVATQCHCGKCDSDSTDCTVRGLGPS	65 L3 81
101	YCSFEGEMKE	

FIG. 7

(SEQ ID NO: 6)

Human Platelet-Derived Growth Factor-A (PDGF A-Chain)

1 SIEEAAPAVCKTRTVIYEIPRSQVDPTSANFLIWPPCVEVKRCTGCCNTS
 11 L1 36
 51 SVKCQPSRVHRSVKVAKVEYVRKKPKLKEVQVRLEEHLECACATTSLNP
 58 L3 88
 101 DYREEDTGRPRESGKKRKRLKPT

FIG. 8

(SEQ ID NO: 7)

Human Platelet-Derived Growth Factor-B (PDGF B-Chain)

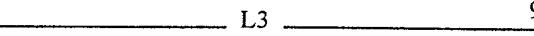
1	 SLGSLTIAEPAMIAECKTRTEVFEISRRRIDRTNANFLVWPPCVELVQRCS
51	 GCCNNRNVQCRPTQVQLRPVQVRKIEIVRKKPIFKKATVTLEDHLACKCE
91	 TVAAARPVTRSPPGSQEQRAKTPQTRVTIRTVRVRPDKHRKFKHTHD
51	 KTALKETI.GA

FIG. 9

(SEQ ID NO: 8)

Human Vascular Endothelial Growth Factor

FIG. 10

(SEQ ID NO: 9)

Human Nerve Growth Factor

1 SSSHPPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNNINSVFK

51 QYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTHTFVKAMLTDGKQAAWR

101 FIRIDTACVCVLSRKAVRRA

FIG. 11

(SEQ ID NO: 10)

Human Brain Derived Neurotrophic Factor

1 HSDPARRGELSVCDSISEWVTAADKKTAVDMMSGGTVTVLEKVSPVKQLK

51 QYFYETKCNPMGYTKEGCRGIDKRHWNSQCRTTQSYVRAMLTDSSKKRIGW

101 RFIRIDTSCVCIILTIKRGR

FIG. 12

(SEQ ID NO: 11)

Human Neurotrophin (NT)-3

1	YAEHKSHRGEYSVCDSESLWVTDKSSAIDI RGHQVTVLGEIGKTNSPVKQ	15	L1	
51	YFYETRCKEARPVKNGCRGIDDRHWNSQCKT SQTYVRASLTENNKLVGWR	56	80	L3
101	WIRIDTSCVCALSRKIGRT	107		

FIG. 13

(SEQ ID NO: 12)

Human Neurotrophin (NT)-4

18 L1
 1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGS
 60
 51 PLRQYFFETRCKADNAEEGGPGAGGGGCRGVDRRHGVSECKAKQSYVRAL
 91 L3 -
 118
 101 TADAQGRVGWRWIRIDTACVCTLSSRTGRA

FIG. 14

(SEQ ID NO: 13)

Human Transforming Growth Factor (TGF)- β 1

1 ALDTNYCFSSTEKNCCVRQLYIDFRKDLGWKWIHEPKGYHANFCLGPCPY
 21 L1 40
 51 IWSLDTQYSKVLALYNQHNPGASAAPCCVPQALEPLPIVYYVGRKPKVEQ
 82 L3
 101 LSNMIVRSCKCS
 102

FIG. 15

(SEQ ID NO: 14)

Human Transforming Growth Factor (TGF)- β 2

1 ALDAAYCFRNVQDNCCCLRPLYIDFKRDLGWKWIHEPKGYNANFCAGACPY
 21 L1 40
 51 LWSSDTQHSRVLSLYNTINPEASASPCCVSQDLEPLTILYYIGKTPKIEQ
 82 L3
 101 LSNMIVKSCKCS
 102

FIG. 16

(SEQ ID NO: 15)

Human Transforming Growth Factor (TGF)- β 3

		21		40	
1	ALDTNYCFRNLEENCCVRLYIDFRQDLGWKWVHEPKGYYANFCSGPCPY	L1			
			82		
51	LRSADTTHSTVLGLYNTLNPEASASPCCVPQDLEPLTILYYVGRTPKVEQ	L3			
	102				
101	LSNMVVKSCKCS				

FIG. 17

(SEQ ID NO: 16)

Human Transforming Growth Factor (TGF)- β 4

1 MWPLWLCWAL WVLPLAGPGA ALTEEQLLAS LLRQLQLSEV PVLDRADMEK
 51 LVIPAHVRAQ YVVLLRRDGD RSRGKRFQS QS FREVAGRFLA SEASTHLLVF
 101 GMEQRLPPNS ELVQAVLRLF QEPVPQGALH RHGRLSPAAP KARVTVEWLV
 151 RDDGSNRTSL IDSRLVSVHE SGWKAFDVTE AVNFWQQQLSR PPEPLLVQVS
 201 VQREHLGPLA SGAHKLVRFA SQGAPAGLGE PQLELHTLDL RDYGAQGDCD
 251 PEAPMTEGTR CCRQEMYIDL OGMKWAKNWV LEPPGFLAYE CVGTCQQPPE
 301 ALAFNWPFLG PRQCIASETA SLPMIVSIKE GGRTRPQVVS LPNMRVQKCS
 351 CASDGALVPR RLQHRPWCIH

FIG. 18

(SEQ ID NO: 17)

Human Neurturin

1 MQRWKAAALA SVLCSSVLSI WMCREGLLLS HRLGPALVPL HRLPRTLDAR
 51 IARLAQYRAL LQGAPDAMEL RELTPWAGRP PGPRRRAGPR RRRARARLGA
 101 RPCGLRELEV RVSELGLGYA SDETVLFRYC AGACEAAARV YDLGLRRLRQ
 151 RRRRLRRERVR AQPCCRPTAY EDEVSFLDAH SRYHTVHELS ARECACV

FIG. 19

(SEQ ID NO: 18)

Human Inhibin α
(Common to Inhibin A and Inhibin B)

1 MVLHLLLFL LTPQGGHSCQ GLELARELVL AKVRALFLDA LGPPAVTREG
 51 GDPGVRRRLPR RHALGGFTHR GSEPEEEEDV SQAILFPATD ASCEDKSAAR
 101 GLAQEAEEGL FRYMFRPSQH TRSRQVTSAQ LWFHTGLDRQ GTAASNSSEP
 151 LLGLLALSPG GPVAVPMSLG HAPPHWAVLH LATSALSLLT HPVLVLLLRC
 201 PLCTCSARPE ATPFLVAHTR TRPPSGGERA RRSTPLMSWP WSPSALRLLQ
 251 RPPEEPAAHA NCHRVALNIS FOELGWERWI VYPPSFIFHY CHGGCGLHIP
 301 PNLSLPVPGA PPTPAQPYSL LPGAQPCCAA LPGTMRPLHV RTTSDGGYSF
 351 KYETVPNLLT QHCACI

FIG. 20

(SEQ ID NO: 19)

Human Inhibin A - β Subunit (α - β A Heterodimer)

1 MPLLWLRGFL LASCWIIVRS SPTPGSEGHS AAPDCPSCAL AALPKDVPNS
 51 QPEMVEAVKK HILNMLHLKK RPDVTQPVPK AALLNAIRKL HVGKVGENGY
 101 VEIEDDIGRR AEMNELMEQT SEIITFAESG TARKTLHFEI SKEGSDLSVV
 151 ERAEVWLFLK VPKANRTRTK VTIRLFQQQK HPQGSLLDTGE EAEEVGLKGE
 201 RSELLLSEKV VDARKSTWHV FPVSSSIQRL LDQGKSSLDV RIACEQCQES
 251 GASLVLLGKK KKKEEEGEGK KKGGGEGGAG ADEEKEQSHR PFLMLQARQS
 301 EDHPHRRRRR GLECDGKVNI CCKKQFFVSF KDIGWNDWII APSGYHANYC
 351 EGECPHSIAG TSGSSLSFHS TVINHYRMRG HSPFANLKSC CVPTKLRPMS
 401 MLYYDDGQNI IKKDIONMIV EECGCS

FIG. 21

(SEQ ID NO: 20)

Human Inhibin B - β Subunit (α - β B Heterodimer)

1 MDGLPGRALG AACLLLLAAG WLGPEAWGSP TPPPTPAAPP PPPPPGSPGG
 51 SQDTCTSCGG FRRPEELGRV DGFLEAVKR HILSRLQMKG RPNITHAVPK
 101 AAMVTALRKL HAGKVREDGR VEIPHLDGHA SPGADGQERV SEIISFAETD
 151 GLASSRVRRLY FFISNEGNQN LFVVQASLWL YLKLLPYVLE KGSRRKVRVK
 201 VYFQEQQHGD RWNMVEKRVD LKRSQWHTFP LTEAIQALFE RGERRLNLDV
 251 QCDSCQELAV VPVFVDPGEE SHRPFVVVQA RLGDLSRHRIR KRGLECDGRT
 301 NLCCRQQFFI DFRLIGWNDW IIAPTGYYGN YCEGSCPAYL AGVPGSASSF
 351 HTAVVNQYRM RGLNPGTVNS CCIPTKLSTM SMLYFDDEYN IVKRDVPNMI
 401 VEECGCA

FIG. 22

(SEQ ID NO: 21)

Human Activin A (β A Homodimer)

1 MPLLWLRGFL LASCIIIVRS SPTPGSEGHS AAPDCPSCAL AALPKDVPNS
 51 QPEMVEAVKK HILNMLHLKK RPDVTQPVPK AALLNAIRKL HVGKVGENGY
 101 VEIEDDIGRR AEMNELMEQT SEIITFAESG TARKTLHFEI SKEGSDLSVV
 151 ERAEVWLFLK VPKANRTRTK VTIRLFQQQK HPQGSLDTGE EAEEVGLKGE
 201 RSELLLSEKV VDARKSTWHV FPVSSSIQRL LDQGKSSLDV RIACEQCQES
 251 GASLVLLGKK KKKEEEGEGK KKGGGEggAG ADEEKEQSHR PFLMLQARQS
 301 EDHPHRRRRR GLECDGKVNI CCKKQFFVSF KDIGWNDWII APSGYHANYC
 351 EGECPHSIAG TSGSSLSFHS TVINHYRMRG HSPFANLKSC CVPTKLRPMS
 401 MLYYDDGQNI IKKDIONMIV EECGCS

FIG.23

(SEQ ID NO: 22)

Human Activin B (βB Homodimer)

```

1      MDGLPGRALG AACLLLLAAG WLGPEAWGSP TPPPTPAAPP PPPPPGSPGG
51     SQDTCTSCGG FRRPEELGRV DGDFLEAVKR HILSRLQMRG RPNITHAVPK
101    AAMVTALRKL HAGKVREDGR VEIPHLDGHA SPGADGQERV SEIISFAETD
151    GLASSRVRRLY FFISNEGNQN LFVVQASLWL YLKLLPYVLE KGSRRKVRVK
201    VYFQEQQGHGD RWNMVEKRVD LKRSGWHTFP LTEAIQALFE RGERRILNLDV
251    QCDSCQELAV VPVFVDPGEE SHRPFVVVQA RLGDSRHRIR KRGLECDGRT
301    NLCCRQQFFI DFRLIGWNDW IIAPTGYYGN YCEGSCPAYL AGVPGSASSF
351    HTAVVNQYRM RGLNP GTVNS CCIPTKLSTM SMLYFDDEYN IVKRDVPNMI
401    VEECGCA

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FIG.24

(SEQ ID NO: 23)

Human Müllerian Inhibitory Substance (MIS)

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1      MRDLPLTSLA LVLSALGALL GTEALRAEEP AVGTSGLIFR EDLDWPPGIP
51     QEPLCLVALG GDSNGSSSPL RVVGALSAYE QAFLGAVQRA RWGPRDLATF
101    GVCNTGDRQA ALPSLRRRLGA WLRDPGGQRL VVLHLEEVTV EPTPSLRFQE
151    PPPGGAGPPE LALLVLYPGP GPEVTVTRAG LPGAQSLCPS RDTRYLVLAV
201    DRPAGAWRGS GLALTLQPRG EDSRLSTARL QALLFGDDHR CFTRMTPALL
251    LLPRSEPA PL PAHGQLDTV FPPPRPSAEL EESPPSADPF LETLTRLVRA
301    LRVPPARASA PRLALDPDAL AGFPQGLVNL SDPAALERLL DGEPEPLLLL
351    RPTAATTGDP APLHDPTSAP WATALARRVA AELQAAAAEL RSLPGLPPAT
401    APLLARLLAL CPGGPGGLGD PLRALLLKA LQGLRVEWRG RDPRGPGRAQ
451    RSAGATAADG PCALRELSVD LRAERSVLIP ETYQANNQCG VCGWPQSDRN
501    PRYGNHVVLL LKMQARGAAL ARPPCCVPTA YAGKLLISLS EERISAHHVP
551    NMVATECGCR

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FIG.25

(SEQ ID NO: 24)

Human Bone Morphogenic Protein (BMP)-2

```

1      MVAGTRCLLA LLLPQVLLGG AAGLVPELGR RKFAAASSGR PSSQPSDEVL
51     SEFELRLLSM FGLKQRPTPS RDAVVPPYML DLYRRHSGQP GSPAPDHRLE
101    RAASRANTVR SFHHEESLEE LPETSGKTTR RFFFNLSSIP TEEFITSAEL
151    QVFREQMQDA LGNNSSFHHR INIYEIIKPA TANSKFPVTR LLDTRLVNQN
201    ASRWESFDVT PAVMRWTAQG HANHGFVVEV AHLEEKQGVS KRHVRISRSL
251    HQDEHSWSQI RPLLVTFGHD GKGHPLHKRE KRQAKHKQRK RLKSSCKRHP
301    LYVDFSDVGVW NDWIVAPPGY HAFYCHGECP FPLADHLNST NHAIVQTLVN
351    SVNSKIPKAC CVPTELSAIS MLYLDENEKV VLKNYQDMVV EGCGCR

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FIG.26

(SEQ ID NO: 25)

Human Bone Morphogenic Protein (BMP)-3

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1      MAGASRLLFL WLGCFCVSLA QGERPKPPFP ELRKAVPGDR TAGGGPDSEL
51     QPQDKVSEHM LRLYDRYSTV QAARTPGSLE GGSQPWRPRL LREGNTVRSF
101    RAAAAETLER KGLYIFNLTS LTKSENILSA TLYFCIGELG NISLSCPVSG
151    GCSHHAQRKH IQIDLAWTL KFSRNQSQLL GHLSVDMAKS HRDIMSWLHK
201    DITQFLRKAK ENEEFLIGFN ITSKGRQLPK RRLPFPEPYI LVYANDAAIS
251    EPESVVSSLQ GHRNFPTGTV PKWDSHIRAA LSIERRKKRS TGVLPLQNN
301    ELPGAETYQYK KDEVWEERKP YKTLQAQAPE KSKNKKKQRK GPHRKSQTLQ
351    FDEQTLKKAR RKQWIEPRNC ARRYLKVDFA DIGWSEWIIS PKSFDAYYCS
401    GACQFPMPKS LKPSNHATIQ SIVRAVGVP GIEPEPCCVPE KMSSLISILFF
451    DENKNVVLKV YPNMTVESCA CR

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FIG. 27

(SEQ ID NO: 26)

Human Bone Morphogenic Protein (BMP)-3b

1 MAHVPARTSP GPGPQLLLLL LPLFLLLLRD VAGSHRAPAW SALPAAADGL
51 QGDRDLQRHP GDAAATLGP S AQDMVAVHMH RLYEKYSRQG ARPGGGNTVR
101 SFRARLEVVD QKAVYFFNLT SMQDSEMLT ATFHFYSEPP RWPRALEVLC
151 KPRAKNASGR PLPLGPPTRQ HLLFRSLSQN TATQGLLRGA MALAPPRGL
201 WQAKDISPIV KAARRDGELL LSAQLDSEER DPGVPRPSPY APYILVYAND
251 LAISEPNSVA VTLQRYDPFP AGDPEPRAAP NNSADPRVRR AAQATGPLQD
301 NELPGLDERP PRAHAQHFHK HQLWPSPFRA LKPRPGRKDR RKKGQEVFMA
351 ASQVLDFDEK TMQKARRKQW DEPRVCSRRY LKVDFADIGW NEWIIISPKSF
401 DAYYCAGACE FPMPKIVRPS NHATIQSIVR AVGIIPGIPE PCCVPDKMNS
451 LGVLFLDENR NVVLKVYPNM SVDTCACR

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FIG. 28

(SEQ ID NO: 27)

Human Bone Morphogenic Protein (BMP)-4

1 MIPGNRMLMV VLLCQVLLGG ASHASLIPET GKKKVAEIQG HAGGRRSGQS
51 HELLRDFEAT LLQMFGLRRR PQPSKSAVIP DYM RDLYRLQ SGEEEEEEQIH
101 STGLEYPERP ASRANTVRSF HH EEHLENIP GTSENSAFRF LFNLS SIPEN
151 EAIS SAEELRL FREQV DQGP D WERGFHRINI YEV MKPPAEV VPGHLITRLL
201 DTRLVHHNVT RWETFDVSPA VLRWTREKQP NYGLAIEVTH LHQTRTHQGQ
251 HVRISRSLPQ GSGNWAQLRP LLVTFGHDGR GH ALTRRRRA KRSPKHHHSQR
301 ARKKNKNCRR HSLYVDFSDV GWNDWIVAPP GYQAFYCHGD CPFPLADHLN
351 STNHAIQCTL VNSVN SSI PK ACCVPTELSA ISMLYLDEYD KVVLKNYOEM
401 VVEGCGCR

FIG. 29

(SEQ ID NO: 28)

Human Bone Morphogenetic Protein (BMP)-5 Precursor

1 MHLTVFLLKG IVGFLWSCWV LVGYAKGGLG DNHVHSSFIY RRLRNHERRE
 51 IQREILSILG LPHRPRPFSP GKQASSAPLF MLDLYNAMTN EENPEESEYS
 101 VRASLAEETR GARKGYPASP NGYPERRIQLS RTTPLTTQSP PLASLHDTNF
 151 LNDADMVMSF VNLVERDKDF SHQRRHYKEF RFDLTQIPHG EAVTAAEFRI
 201 YKDRSNNRFE NETIKISIYQ IIKEYTNRDA DLFLLDTRKA QALDVGWLVF
 251 DITVTSNHWV INPQNNLGLQ LCAETGDGRS INVKSAGLVG RQGPQSKQPF
 301 MVAFFKASEV LLRSVRAANK RKNQNRNKSS SHQDSSRMSS VGDYNTSEQK
 351 QACKKHELYV SFRDLGWQDW IIAPEGYAAF YCDGECSFPL NAHMNATNHA
 401 IVQTLVHLMF PDHVPKPCCA PTKLNAISVL YFDDSSNVIL KKYRNMVVR
 451 CGCH

FIG. 30

(SEQ ID NO: 29)

Human Bone Morphogenetic Protein (BMP)-6/Vgrl

1 SSASDYNSELKTACRKH²¹ELYV⁴⁰SFQDLGW⁸¹qwIIAPKGYAANYCDGECSPP
 51 LNAhtNHAIVQ¹⁰²TLVHLMNPEYVPKPC¹⁰²APTKLNAISVLYFDDNSNVikKY
 101 RNMVVRACGCH

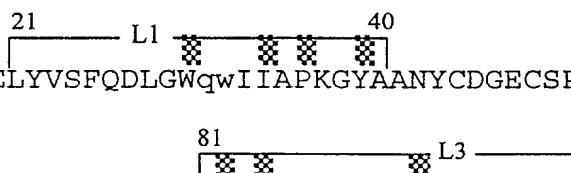


FIG. 31

(SEQ ID NO: 30)

Human Bone Morphogenic Protein (BMP)-7/Osteogenic Protein (OP)-1

1 ANVAENSSSDQRQACKKHELYVSFRDLGWQWI IAPEGYAAYYCEGECAFP
 21 L1 40
 51 LNSATNHAIVQTLVHFINPETVPKPCAPQLNAISVLYFDDSSNVVIKKY
 81 L3
 101 102
 RNMVVRACGCH

FIG. 32

(SEQ ID NO: 31)

Human Bone Morphogenic Protein (BMP)-8/Human Osteogenic Protein (OP)-2

1 MTALPGPLWL LGLALCALGG GGPGLRPPPG CPQRRLGARE RRDVQREILA
51 VLGLPGRPRP RAPPAASRLP ASAPLFMLDL YHAMAGDDDE DGAPAERRLG
101 RADLVMSFVN MVERDRALGH QEPHWKEFRF DLTQIPAGEA VTAAEFRIYK
151 VPSIHLLNRT LHVSMFQVVQ EQSNRESDLF FLDLQTLRAG DEGWLVLVDVT
201 AASDCWLLKR HKDLGLRLYV ETEDGHSVDP GLAGLLGQRA PRSQQPFWVT
251 FFRASPSPIR TPRAVRPLRR RQPKKSNELP QANRLPGIFD DVHGSHGRQV
301 CRRHELYVSF QDLGWLDWVI APOGYSAYYC EGECSFPLDS CMNATNHAIL
351 QSLVHLMKPN AVPKACCAPT KLSATSVLYY DSSNNVILRK HRNMVVVKACG
401 CH

FIG.33

(SEQ ID NO: 32)

Human Bone Morphogenic Protein (BMP)-10

1 MGSLVLTCA LFCLAAVLVS GSPIMNLEQS PLEEDMSLFG DVFSEQDGVD
 51 FNTLLQSMKD EFLKTLNLSD IPTQDSAKVD PPEYMLELYN KFATDRTSMP
 101 SANIIRSFKN EDLFSQPVSF NGLRKYPPLF NVSIPHHEEV IMAELRLYTL
 151 VQRDRMIYDG VDRKITIFEV LESKGDNEGE RNMLVLVSGE IYGTNSEWET
 201 FDVTDAIRRW QKSGSSTHQL EVHIESKHDE AEDASSGRLE IDTSAQNKHN
 251 PLLIVFSDDQ SSDKERKEEL NEMISHEQLP ELDNLGLDSF SSGPGEALL
 301 QMRSNIIYDS TARIRRNAKG NYCKRTPLYI DFKEIGWDSW IIAPPGYEAY
 351 ECRGVCNYPL AEHLTPTKHA IIQALVHLKN SQKASKACCV PTKLEPISIL
 401 YLDKGVVVTYK FKYEGMAVSE CGCR

FIG.34

(SEQ ID NO: 33)

Human Bone Morphogenic Protein (BMP)-11

1 MVLAAPLLL G FLLIALELRP RGEAAEGPAA AAAAAAAAAGVGGERSSR
 51 PAPSVAPEPD GCPVCVWRQH SRELRLESIK SQILSKLRLK EAPNISREVV
 101 KQLLPKAPPL QQILDLHDFQ GDALQPEDFL EEDEYHATTE TVISMAQETD
 151 PAVQTDGSPL CCHFHFS PKV MFTKVLKAQL WVYLRPVPRP ATVYLQILRL
 201 KPLTGE GTAG GGGGGRRHIR IRS LKIELHS RSGHWQSIDF KQLH SWFRQ
 251 PQSNWGIEIN AFDPSGTDLA VTS LGPGAEG LHPFMELRVL ENTKRSRRNL
 301 GLDCDEHSSE SRCCRYPLTV DFEAFGWDWI IAPKRYKANY CSGQCEYMF M
 351 QKYPHTHLVQ QANPRGSAGP CCTPTKMSPI NMLYFNDKQQ IIYGKIPGMV
 401 VDRCGCS

FIG. 35

(SEQ ID NO: 34)

I. HUMAN BONE MORPHOGENIC PROTEIN (BMP)-15

1 MVLLSILRIL FLCELVLFME HRAQMAEGGQ SFIALLAEAP TLPLIEEMLE
 51 ESPGEQPRKP RLLGHSLRYM LELYRRSADS HGHPRENRTI GATMVRLVKP
 101 LTSVARPHRG TWHIQILGFP LRPNRGLYQL VRATVVYRHH LQLTRFNLSC
 151 HVEPWVQKNP TNHFPSSEGD SSKPSLMSNA WKEMDITQLV QQRFWNNKGH
 201 RILRLRFMCQ QQKDSGGLEL WHGTSSLIDIA FLLLYFNDTH KSIRKAKFLP
 251 RGMEEFMERE SLLRRTRQAD GISAEVTASS SKHSGPENNQ CSLHPFQISF
 301 RQLGWDHWII APPFYTPNYC KGTCLRVLRD GLNSPNHAIII QNLINQLVDQ
 351 SVPRPSCVPY KYVPISVLM EANGSILYKE YEGMIAESCT CR

FIG. 36

(SEQ ID NO: 35)

Human Norrie Disease Protein (NDP) [Norrin]

1 MRKHVLAASF SMLSLLVIMG DTDSKTDSSF IMDSDPRRCM RHHYVDSISH
 51 PLYKCSSKMV LLARCEGHCS QASRSEPLVS FSTVLKQPFR SSCHCCRPQT
 101 SKLKALRLRC SGGMRLTATY RYILSCHCEE CNS

FIG.37

(SEQ ID NO: 36)

Human Growth Differentiation Factor (GDF)-1

1 MPPPQQGPCG HHLLLLALL LPSLPLTRAP VPPGPAAALL QALGLRDEPQ
 51 GAPRLRPVPP VMWRLFRRRD PQETRSGSRR TSPGVTLQPC HVEELGVAGN
 101 IVRHIPDRGA PTRASEPVSA AGHCPEWTVV FDLSAVEPAE RPSRARLELR
 151 FAAAAAAAPE GGWELSVAQA GQGAGADPGP VLLRQLVPAL GPPVRAELLG
 201 AAWARNASWP RSLRLALALR PRAPAAACARL AEASLLLVTI DPRLCCHPLAR
 251 PRRDAEPVLG GGPGGACRAR RLYVSFREVG WHRWVIAPRG FLANYCQGQC
 301 ALPVALSGSG GPPALNHAVL RALMHAAPG AADLPCCVPA RLSPISVLFF
 351 DNSDNVVLRO YEDMVVDECG CR

FIG.38

(SEQ ID NO: 37)

Human Growth Differentiation Factor (GDF)-5 Precursor

1 MRLPKLLTFL LWYLAWLDE FICTVLGAPD LGQRQPQGSRP GLAKAEAKER
 51 PPLARNVFRP GGHSYGGGAT NANARAKGGT GQTGGLTQPK KDEPKKLPPR
 101 PGGPEPKPGH PPOTRQATAR TVTPKGQLPG GKAPPKAGSV PSSFLLKKAR
 151 EPGPPREPKE PFRPPPITPH EYMLSPLYRTL SDADRKGGSN SVKLEAGLAN
 201 TITSFIDKGQ DDRGPVVRKQ RYVFDISALE KDGLLGAEILR ILRKKPSDTA
 251 KPAVPRSRRRA AQLKLSSCPS GRQPAALLDV RSVPGLDGSG WEVFDIWKLF
 301 RNFKNNSAQLC LELEAWERGR TVDLRGLGFD RAARQVHEKA LFLVFGRTKK
 351 RDLFFNEIKA RSGQDDKTVY EYLFSQRRKR RAPSATRQGK RPSKNLKARC
 401 SRKALHVNFK DMGWDDWIIA PLEYEAFHCE GLCEFPLRSW LEPTNHAVIQ
 451 TLMNSMDPES TPPTCCVPTR LSPISILFID SANNVVYKQY EDMVVESCGC
 501 R

FIG. 39

(SEQ ID NO: 38)

**Human Growth Differentiation Factor (GDF)-8
[Myostatin]**

1 MQKLQLCVYI YLFMLIVAGP VDLNENSEQK ENVEKEGLCN ACTWRQNTKS
 51 SRIEAIKIQI LSKLRLETAP NISKDVIRQL LPKAPPLREL IDQYDVQRDD
 101 SSDGSLEDDD YHATTETIIT MPTESDFLMQ VDGKPCCFF KFSSKIQYNK
 151 VVKAQLWIYL RPVETPTTVF VQILRLIKPM KDGTRYTGIR SLKLDMNPGL
 201 GIWQSIDVKT VLQNWLKQPE SNLGIEIKAL DENGHDLAVT FPGPGEDGLN
 251 PFLEVKTDT PKRSRRDFGL DCDEHSTESR CCRYPLTVDF EAFGWDWI
 301 PKRYKANYCS GECEFVFLQK YPHTHLVHQA NPRGSAGPCC TPTKMSPINM
 351 LYFNGKEQII YGKIPAMVVD RCGCS

FIG. 40

(SEQ ID NO: 39)

Human Growth Differentiation Factor (GDF)-9

1 MARPNKFLLW FCCFAWLCFP ISLGSQASGG EAQIAASAEL ESGAMPWSLL
 51 QHIDERDRAG LLPALFKVLS VGRGGSPRLQ PDSRALHYMK KLYKTYATKE
 101 GIPKSNRSHL YNTVRLFTP C TRHKQAPGDQ VTGILPSVEL LFNLDRITTV
 151 EHLLKSVLLY NINNSVSFSS AVKCVCNLMI KEPKSSSRTL GRAPYSFTFN
 201 SQFEFGKKHK WIQIDVTSLL QPLVASNKRS IHMSINFCTM KDQLEHPSAQ
 251 NGLFNMTLVS PSLILYLNDT SAQAYHSWYS LHYKRRPSQG PDQERSLSAY
 301 PVGEEAAEDG RSSHHRHRRG QETVSSELKK PLGPASFNL S EYFRQFLLPQ
 351 NECELHDFRL SFSQLKWDNW IVAPHRYNPR YCKGDCPRAV GHRYGSPVHT
 401 MVQNI IYEKL DSSVPRPSCV PAKYSPLSVL TIEPDGSIA Y KEYEDMIATK
 451 CTCR

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FIG. 41
(SEQ ID NO: 40)

Human Artemin (GDNF)

1 MPGLISARGQ PLLEVLPQA HLGALFLPEA PLGLSAQPAL WPTLAALALL
51 SSVAEASLGS APRSPAPREG PPPVLASPAG HLPGGRTARW CSGRARRPPP
101 QPSRPAPPPP APPSALPRGG RAARAGGPGS RARAAGARGC RLRSQLPV
151 LRLGHRSDE LVRFRFCSGS CRRARSPHDL SLASLLGAGA LRPPPGSRPV
201 SQPCCRPTRY EAVSFMDVNS TWRTVDRLSA TACGCLG

FIG. 42
(SEQ ID NO: 41)

Human Glial Cell Derived Factor (GDNF)
[Persephin]

1 MAVGKFLLGS LLLLSQLGQ GWGPDARGVP VADGEFSSEQ VAKAGGTWLG
51 THRPLARLRR ALSGPCQLWS LTLSVAELGL GYASEEKVIF RYCAGSCPRG
101 ARTQHGLALA RLQQQGRAHG GPCCRPTRYT DVAFLDDRHR WORLPOLSAA
151 ACGCGG